

IN THE CLAIMS:

Please cancel Claim 8 without prejudice or disclaimer of the subject matter recited therein.

Please amend Claims 1, 4-6, 9 and 15 and add new Claims 16-27 as follows.

1. (Currently Amended) An image observation system, comprising:
a pair of image observation devices each having i) an image pickup device, ii) an image pickup optical system for directing light rays from an outside world to said image pickup device, iii) a display device for displaying an outside world image obtained by said image pickup system, and iv) a display optical system for directing light from said display device to an observing eye,

wherein, where an axis containing a center of an entrance pupil of said image pickup optical system and a point being conjugate with a center of said image pickup device with respect to said image pickup optical system is taken as an optical axis of an image pickup system while an axis containing a center of an exit pupil of said display optical system and a point being conjugate with a center of said display device with respect to said display optical system is taken as an optical axis of a display system, the optical axis of the image pickup system and the optical axis of the display system optical axis are disposed coaxially,

wherein the optical axes of the image pickup systems of the pair of image observation devices define a point of intersection, and

wherein a focal plane being at a position conjugate with a surface of said image pickup device with respect to said image pickup optical system is disposed at a side of the intersection point of the optical axes of the image pickup systems, which side faces an observer, and

wherein, when the distance from an entrance pupil of said image pickup optical system to a focal plane of said image pickup optical system is H, the size of the entrance pupil of said image pickup optical system is D, the focal length of said image pickup optical system is f, and the size of one picture element of said image pickup device is a, the distance L from the entrance pupil of said image pickup optical system to the intersection point satisfies the following relation:

$$L \leq [f \cdot D \cdot H] / [f \cdot D - a \cdot H].$$

2. (Original) An image observation system according to Claim 1, wherein the focal plane of said image pickup optical system is fixed at a predetermined position.

3. (Original) An image observation system according to Claim 1, wherein the focal plane of said image pickup optical system is set at a distance not greater than 1 m from the observer's position.

4. (Currently Amended) An image observation system according to Claim 1, wherein a virtual image position of a center view angle of each display system, corresponding

to a position conjugate with the said center of the display device in the pair of image observation devices, with respect to the said display optical system, is approximately coincident with the intersection point of the optical axes of the said image pickup systems.

5. (Currently Amended) An image observation system according to Claim 1, wherein a virtual image position of a center view angle of each display system, corresponding to a position conjugate with the center of the said display device in the pair of image observation devices, with respect to the said display optical system, is at a side of the intersection point of the optical axes of the said image pickup systems, which side faces the observer.

6. (Currently Amended) An image observation system according to Claim 5, wherein the distance between the virtual image position of the center view angle of the said display system and the intersection point of the optical axes of the said image pickup systems is not greater than 0.3 diopter.

7. (Original) An image observation system according to Claim 1, wherein said image pickup optical system has an imaging view angle being approximately equal to a display view angle of said display optical system.

Claim 8. (Cancelled).

9. (Currently Amended) An image observation system, comprising:
according to Claim 1;
a pair of image observation devices each having i) an image pickup
device, ii) an image pickup optical system for directing light rays from an outside world to said
image pickup device, iii) a display device for displaying an outside world image obtained by said
image pickup system, and iv) a display optical system for directing light from said display device
to an observing eye,
wherein, where an axis containing a center of an entrance pupil of said
image pickup optical system and a point being conjugate with a center of said image pickup
device with respect to said image pickup optical system is taken as an optical axis of an image
pickup system while an axis containing a center of an exit pupil of said display optical system
and a point being conjugate with a center of said display device with respect to said display
optical system is taken as an optical axis of a display system, the optical axis of the image pickup
system and the optical axis of the display system optical axis are disposed coaxially,
wherein the optical axes of the image pickup systems of the pair of
image observation devices define a point of intersection,
wherein a focal plane being at a position conjugate with a surface of
said image pickup device with respect to said image pickup optical system is disposed at a side of
the intersection point of the optical axes of the image pickup systems, which side faces an
observer, and

wherein, when a straight line perpendicular to the focal plane of said image pickup optical system and passing through the center of the entrance pupil of said image pickup optical system is taken as an optical axis of said image pickup optical system while a straight line perpendicular to the virtual image plane and passing through the center of the exit pupil of said display optical system is taken as an optical axis of said display optical system, the optical axis of one image pickup optical system of the pair of image pickup systems, which one is at the outside world side, and the optical axis of one display optical system of the pair of display systems, which one is at the eye ball side, are parallel to each other and are spaced by an even interval, and wherein the centers of the pair of image pickup devices are disposed with a shift of a predetermined distance, with respect to the optical axes of the respective image pickup optical systems, while the centers of the pair of display devices are disposed with a shift by a predetermined distance, with respect to the optical axes of the respective display optical systems, whereby the point of intersection of the optical axes of the pair of image pickup systems is defined.

10. (Original) An image observation system according to Claim 1, wherein said image pickup optical system includes i) a prism with plural planes having a transmission function and a total reflection function, and ii) an optical element disposed in a portion of an optical path between said prism and said image pickup device and having a positive optical power.

11. (Original) An image observation system according to Claim 1, wherein said image pickup optical system has an eccentric and non-rotationally symmetric reflection surface having an optical power being different in accordance with an azimuth angle.

12. (Original) An image observation system according to Claim 1, wherein said display optical system has an eccentric and non-rotationally symmetric reflection surface having an optical power being different in accordance with an azimuth angle.

13. (Original) An image observation system according to Claim 1, further comprising image creating means for producing an image and image synthesizing means for combining an image from said image creating means and an image from said image pickup system so that a combined image is displayed upon said display device.

14. (Original) An image observation system according to Claim 1, wherein the entrance pupil position of said image pickup optical system is disposed with a shift, toward the outside world, from the exit pupil position of said display optical system.

15. (Currently Amended) An image observation system according to Claim 14, wherein therein the amount of shift of the entrance pupil position of the said image pickup optical system with respect to the exit pupil position of the said display optical system is not greater than 60 mm.

16. (New) An image observation system according to Claim 9, wherein the focal plane of said image pickup optical system is fixed at a predetermined position.

17. (New) An image observation system according to Claim 9, wherein the focal plane of said image pickup optical system is set at a distance not greater than 1 m from the observer's position.

18. (New) An image observation system according to Claim 9, wherein a virtual image position of a center view angle of each display system, corresponding to a position conjugate with the center of said display device in said pair of image observation devices, with respect to said display optical system, is approximately coincident with the intersection point of the optical axes of said image pickup systems.

19. (New) An image observation system according to Claim 9, wherein a virtual image position of a center view angle of each display system, corresponding to a position conjugate with the center of said display device in the pair of image observation devices, with respect to said display optical system, is at a side of the intersection point of the optical axes of said image pickup systems, which side faces the observer.

20. (New) An image observation system according to Claim 18, wherein the distance between the virtual image position of the center view angle of said display system

and the intersection point of the optical axes of said image pickup systems is not greater than 0.3 diopter.

21. (New) An image observation system according to Claim 9, wherein said image pickup optical system has an imaging view angle being approximately equal to a display view angle of said display optical system.

22. (New) An image observation system according to Claim 9, wherein said image pickup optical system includes i) a prism with plural planes having a transmission function and a total reflection function, and ii) an optical element disposed in a portion of an optical path between said prism and said image pickup device and having a positive optical power.

23. (New) An image observation system according to Claim 9, wherein said image pickup optical system has an eccentric and non-rotationally symmetric reflection surface having an optical power being different in accordance with an azimuth angle.

24. (New) An image observation system according to Claim 9, wherein said display optical system has an eccentric and non-rotationally symmetric reflection surface having an optical power being different in accordance with an azimuth angle.

25. (New) An image observation system according to Claim 9, further comprising image creating means for producing an image and image synthesizing means for combining an image from said image creating means and an image from said image pickup system so that a combined image is displayed upon said display device.

26. (New) An image observation system according to Claim 9, wherein the entrance pupil position of said image pickup optical system is disposed with a shift, toward the outside world, from the exit pupil position of said display optical system.

27. (New) An image observation system according to Claim 26, wherein therein the amount of shift of the entrance pupil position of said image pickup optical system with respect to the exit pupil position of said display optical system is not greater than 60 mm.